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Dawes, Jay; Johnson, Quincy; Terrance, Troy; Orr, Rob Marc; Lockie, Robert

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# DIFFERENCES IN SELECTED MEASURES OF FITNESS BETWEEN POLICE CADETS THAT PASS OR FAIL TRAINING ACADEMY

J. Jay Dawes<sup>1</sup>, Quincy Johnson<sup>1</sup>, Troy Terrance<sup>2</sup>, Robin M. Orr<sup>3</sup>, Robert G. Lockie<sup>4</sup>

<sup>1</sup>Oklahoma State University, School of Applied Kinesiology, Health and Recreation, Stillwater, OK, USA; <sup>2</sup> Indiana State Highway Patrol, Training Division, CITY IN, USA; <sup>3</sup> Tactical Research Unit, Bond University, Robina, QLD, AUS; <sup>4</sup> California State University Fullerton, Fullerton, CA, USA



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## ABSTRACT

During police academy training, cadets are required to participate in physically demanding activities as part of their standard training. Based on this, a certain requisite level of fitness is necessary to withstand the rigors of training.

**PURPOSE:** To determine if differences in selected measures of fitness exist between police cadets that complete or fail training academy based in a Midwestern state.

**METHODS:** Anonymized archival data for 1,964 police cadets (M= 1810, F= 154) was provided to the primary investigator for analysis. Test data provided included performance scores for the vertical jump (VJ), push-up (PU), sit-up (SU) 2.4 km run, and the 300 m sprint.

**RESULTS:** Significant differences were discovered between males that graduated or failed academy in VJ, PU, SU, 2.4 km run, and 300 m sprint. Significant differences among females that graduated or failed academy were observed in the 300 m sprint, with a non-significant, moderate effect size observed in the PU.

**CONCLUSION:** male and female cadets that are fitter tend to have a greater likelihood of graduating compared to their less fit counterparts.

## INTRODUCTION

- During police academy training, cadets are required to participate in physically demanding activities as part of their standard training.
- Based on this, a certain requisite level of fitness is necessary to withstand the rigors of training.
- Those fitness qualities most important for cadets can depend on the specific training academy where the cadets are located.
- Thus, the purpose of this study was to determine if differences in selected measures of fitness exist between police cadets that complete or fail training academy based in a Midwestern state.

## METHODS

- Anonymized archival data for 1,964 police cadets (M= 1810, F= 154) was provided to the primary investigator for.
- A one-way ANOVA with Tukey’s post hocs, as well as an effect size calculation, was used to determine differences in fitness levels between the four groups.

## METHODS

- Test data provided included performance scores for the:
  - Vertical jump (VJ)
  - Push-up (PU)
  - Sit-up (SU)
  - 2.4 km run
  - 300 m sprint.
- Cadets were then split into four groups:
  - Males that graduated
  - Females that graduated
  - Males that failed
  - Females that failed



## RESULTS

- Significant differences were discovered between males that graduated or failed academy in VJ (p = 0.022), PU (p <.001), SU (p = .04), 2.4 km run (p < .001), and 300 m sprint (p = .004).
- Significant differences among females that graduated or failed academy were observed in the 300 m sprint (p = .001), with a non-significant, moderate effect size observed in the PU (d = .652).
- Additionally, males that graduated were significantly (p = .001) better in all tests compared to females that graduated.
- When comparing males and females that failed, males were significantly better in all measures (p = .001) except SU and 2.4 km performance.
- Finally, males that failed still performed significantly better in the VJ (p <0.001), PU (p = 0.001 ), SU (p < 0.001), and 300 m sprint (p < 0.001) than females who graduated.
- However, no significant differences were discovered between males that failed and females that graduated in the 2.4 km (p = 1.000),

Table 1. Mean ± SD for the vertical jump (VJ), push-up (PU), sit-up (SU) 2.4 km run, and the 300 m sprint for male cadets who graduated or failed

Occupational Task	Male (graduated)	Male (failed)	p-value
VJ	21.35 ± 2.19 in.*	20.47 ± 3.42 in	0.022
PU	39.03 ± 11.86 *	34.78 ± 9.87	<0.001
SU	36.54 ± 6.30 *	34.88 ± 6.11	0.036
2.4 km run	13.08 ± 1.68 min.*	13.95 ± 2.12 min.	<0.001
300 m sprint	53.67 ± 5.26 s*	55.45 ± 5.98 s	0.004

\* = Significantly different from males who failed

Table 2. Mean ± SD for the vertical jump (VJ), push-up (PU), sit-up (SU) 2.4 km run, and the 300 m sprint for female cadets who graduated or failed

Occupational Task	Female (graduated)	Female (failed)	p-value
VJ	17.15 ± 2.02 in.	16.07 ± 1.65 in	0.453
PU	29.26 ± 7.52	24.62 ± 3.44	0.311
SU	38.82 ± 5.99	36.05 ± 6.04	0.236
2.4 km run	13.94 ± 1.44 min.	14.60 ± 1.32 min.	0.336
300 m sprint	60.49 ± 4.66 s*	63.81 ± 4.72 s	0.036

\* = Significantly different from females who failed

## RESULTS

Table 3. Mean ± SD for the vertical jump (VJ), push-up (PU), sit-up (SU) 2.4 km run, and the 300 m sprint for male and female cadets who graduated

Occupational Task	Male (graduated)	Female (graduated)	p-value
VJ	21.35 ± 2.19 in.*	17.15 ± 2.02 in.	<0.001
PU	39.03 ± 11.86 *	29.26 ± 7.52	<0.001
SU	36.54 ± 6.30 *	38.82 ± 5.99	<0.001
2.4 km run	13.08 ± 1.68 min.*	13.94 ± 1.44 min.	<0.001
300 m sprint	53.67 ± 5.26 s*	60.49 ± 4.66 s*	<0.001

\* = Significantly different from females who passed

Table 4. Mean ± SD for the vertical jump (VJ), push-up (PU), sit-up (SU) 2.4 km run, and the 300 m sprint for male and female cadets who failed

Occupational Task	Male (failed)	Female (failed)	p-value
VJ	20.47 ± 3.42 in.*	16.07 ± 1.65 in	<0.001
PU	34.78 ± 9.87 *	24.62 ± 3.44	0.001
SU	34.88 ± 6.11	36.05 ± 6.04	0.863
2.4 km run	13.95 ± 2.12 min.	14.60 ± 1.32 min.	0.366
300 m sprint	55.45 ± 5.98 s*	63.81 ± 4.72 s	<0.001

\* = Significantly different from females who failed

Table 5. Mean ± SD for the vertical jump (VJ), push-up (PU), sit-up (SU) 2.4 km run, and the 300 m sprint for male cadets who failed and female cadets who graduated

Occupational Task	Male (failed)	Female (graduated)	p-value
VJ	20.47 ± 3.42 in.*	17.15 ± 2.02 in.	<0.001
PU	34.78 ± 9.87 *	29.26 ± 7.52	0.001
SU	34.88 ± 6.11*	38.82 ± 5.99	<0.001
2.4 km run	13.95 ± 2.12 min.	13.94 ± 1.44 min.	1.000
300 m sprint	55.45 ± 5.98 s*	60.49 ± 4.66 s*	<0.001

\* = Significantly different from females who passed

## CONCLUSIONS

- In general terms, when separated by sex, male and female cadets that are fitter tend to have a greater likelihood of graduating compared to their less fit counterparts.
- Male cadets tend to achieve higher scores in all measures of fitness when compared to females, regardless of graduation status. It should be noted that there are other aspects of academy training that can determine whether a cadet passes or fails (e.g. academics, skills training).
- Nonetheless, greater fitness still appears to be beneficial.

## PRACTICAL APPLICATIONS

- A certain level of fitness should be attained prior to the commencement of training academy.
- Since both male and female officers must perform the same essential job duties, it is advisable that strength and conditioning programs be implemented to reduce this gap in fitness between sexes.

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